

Melinda L. Erickson, PhD, PE  
Hydrologist and Groundwater Specialist  
USGS Minnesota Water Science Center  
2280 Woodale Dr., Mounds View, MN 55112  
763.783.3231 or [merickso@usgs.gov](mailto:merickso@usgs.gov)

---

*Primary research interests:* geochemistry, fate, and transport of metals (e.g., arsenic, iron, manganese) and organic chemicals (e.g., petroleum fuels, endocrine active chemicals, and pharmaceuticals) in groundwater systems in the upper Midwest.

## PROFESSIONAL EXPERIENCE

### USGS MN Water Science Center, 2009 – Present: Hydrologist, Groundwater Specialist, Team Lead

#### Current Assignments

**Principal Investigator** for large, complex projects researching different aspects of the geochemistry, fate, and transport of metals (e.g., arsenic, iron, manganese) and organic chemicals (e.g., petroleum fuels, endocrine active chemicals, and pharmaceuticals) in groundwater systems in the upper Midwest. My current major projects include *Arsenic in Minnesota groundwater—Occurrence and relation to hydrogeologic and geochemical factors* and *Evaluating Contaminants of Emerging Concern in Groundwater at Wastewater Land Application Sites*.

**Science team member or Project Manager** for other projects. My current projects include a statistical exploration of a new groundwater chemistry data set, application of relatively simple desktop methods to test hypotheses as to the differences in private well nitrate concentrations and redox chemistry for similar settings across a township, management of the administrative aspects of a project monitoring viruses in groundwater, and a continuation of collaborative research at the Toxics Bemidji Oil Spill Research Site related to hydrocarbon degradate transport and arsenic cycling in aquifer sediments.

**Groundwater Specialist** for the Center, overseeing the quality-assurance and quality-control programs related to groundwater data collection and processing, and provide technical oversight of the Center's investigations for groundwater. I promote and enhance the capabilities of the Center's groundwater program, provide technical oversight for groundwater data processing performed by personnel working the Center's groundwater programs, analyze groundwater water-quality data, advise Center management staff on all matters pertaining to groundwater programs, and review groundwater and water-quality sections of interpretive reports and other publications prepared by other professional personnel.

**Water Sustainability Team Lead**, supervising five subordinates. In this capacity, I plan and make work assignments; allocate assigned resources; review, accept, amend, or reject work done by subordinate(s); evaluate performance and assign ratings; recommend awards, promotions, and training; counsel employees on conduct and performance issues, and initiate corrective actions, when needed.

#### Significant Past Assignments

**Principal Investigator** for project *Emerging Contaminants in Shallow Groundwater in Minnesota*. Project ran from September 2009 – September 2014.

**Site Coordinator and Site Manager** for the National Crude Oil Spill Fate and Natural Attenuation Research Site, near Bemidji, MN, also known as the Toxics Bemidji Oil Spill Research Site (site) March 2009 – September 2014

**Principal Investigator** for the project *Assessing Regional Differences in Arsenic Concentrations in Minnesota Groundwater, 1992 – 2010*. Project ran from March 2010 through June 2011.

---

## State of Minnesota, Pollution Control Agency, 2006 – 2009: Environmental Research Scientist

As the lead scientist, researched the presence of emerging environmental contaminants in groundwater and other media. My expertise complemented that of my toxicology and public health colleagues. My primary duties were to develop and implement hydrological and geochemical research projects related to the fate and transport of emerging environmental chemicals throughout the ambient environment. I was involved with all manner of data collection and data analysis. While at MPCA, I also led the ambient groundwater monitoring project. This involved developing, implementing, and reporting results of a statewide ambient groundwater monitoring strategy, including defining the geochemical and hydrological scope of the project.

## State of Minnesota, Department of Transportation, 2005 – 2006: Research Analyst/Senior Engineer

Designed and lead complex analyses of transportation data primarily using GIS and statistical methods, (for example combining databases of traffic counts with GIS coverages to prioritize transportation funding to high-volume, high-risk road segments; and combining field-based geospatial locations with real-time field measurements). Presented results at professional conferences and in publications.

## State of Minnesota, Department of Health, 1998 – 2000: Hydrologist

Completed, with project team members, a multidisciplinary research project related to elevated levels of naturally-occurring arsenic in west-Central Minnesota groundwater (Minnesota Arsenic Study, or MARS), which included the following activities: selected and supervised field staff; analyzed geologic and hydrogeologic data; analyzed geochemical data; prepared reports and publications; presented research-related results to different audiences, including community groups and professional meetings.

## RETEC, 1993 – 1997: Project Manager/Project Engineer

Completed, with project team members, numerous small and large (\$10K – \$1M budget range) environmental investigation and remediation projects, including the following activities: managed projects; performed hydrogeologic and geologic data analysis; prepared remediation designs; wrote technical reports ; observed, directed, and documented on-site work conducted by subcontractors; interviewed and assisted in hiring decisions regarding new staff; mentored staff.

## EDUCATION

School	Major	Type of Degree [year]
University of Minnesota	Water Resources Science	Doctor of Philosophy [2005] Dissertation title: Arsenic in Upper Midwest Ground Water: Occurrence and Geochemical Mobilization Mechanisms
University of Minnesota	Civil Engineering	Master of Science [1992] Thesis title: Control Equation Formulation for Circular Inhomogeneities in the Analytic Element Method
University of Minnesota	Geological Engineering	Bachelor of Geo-Engineering [1990] <i>cum laude</i>

---

## BIBLIOGRAPHY

### Completed Publications

1. **Salisbury (née Erickson), M.L.**, 1992, *Control Equation Formulation for Circular Inhomogeneities in the Analytic Element Method*, MS Thesis, University of Minnesota.
2. **Salisbury (née Erickson), M.L.**, Control Equation Formulation for Circular Inhomogeneities in the Analytic Element Method. Published in the proceedings of the 1994 International Conference Analytic Element Modeling of Groundwater Flow, Indianapolis, Indiana. April 19-21, 1994.
3. Berndt, M.E., R.G. Soule, and **M.L. Erickson**. 2000. The Minnesota Arsenic Study (MARS): Mechanism and Occurrence of Arsenic in Western Minnesota Groundwater. *Minnesota Groundwater Association Newsletter*, 19:4, pp 1-5. Minneapolis, Minnesota.
4. Minnesota Department of Health (Messing R., R. Soule, J. Small-Johnson, D. Durkin, **M. Salisbury (née Erickson)**, L. Souther, J. Connett, B. Baker). December 2001. *The Minnesota Arsenic Study (MARS): Final Report to ATSDR*
5. **Erickson, M. L.** and R.J. Barnes. March 2004. Arsenic in Ground Water: Recent Research and Implications for Minnesota. *Minnesota Ground Water Association Newsletter* 23:1.
6. **Erickson, M.L.** and R.J. Barnes. May 2004. Arsenic in Ground Water: Recent Research and Implications for Minnesota. *CURA Reporter* 34[2].
7. Barnes, R.J. and **M.L. Erickson**. June 2004. Arsenic in Minnesota groundwater and its impact on drinking water supply. Final report to the University of Minnesota Water Resources Center for a USGS-WRRI 104B grant.
8. **Erickson, M.L.** and R.J. Barnes. November 2004. Arsenic in Newly Constructed Domestic Wells in Minnesota: Recent Research Results and Implications, Report to Minnesota Department of Health.
9. **Erickson, M.L.** and R.J. Barnes. December 2004. Arsenic Concentration Variability in Public Water System Wells in Minnesota, Report to Minnesota Department of Health.
10. **Erickson, M.L.** and R.J. Barnes. February 24, 2005. Arsenic in Upper Midwest Drinking Water. Paper published in the proceedings of the 2005 National Ground Water Association Naturally Occurring Contaminants Conference: Arsenic, Radium, Radon, and Uranium, pp 135 – 149. February 24-25, 2005. Charleston, SC.
11. **Erickson, Melinda Leigh**, 2005, *Arsenic in upper Midwest ground water: occurrence and geochemical mobilization mechanisms*, PhD Dissertation, University of Minnesota.
12. **Erickson, Melinda L.** and Barnes, Randal J. 2005, Arsenic concentration variability in public water system wells in Minnesota, USA, *Applied Geochemistry*, Volume 21, Issue 2, February 2006, Pages 305–317, doi:10.1016/j.apgeochem.2005.12.005.
13. **Erickson, Melinda L.** and Barnes, Randal J., 2005, Glacial Sediment Causing Regional-Scale Elevated Arsenic in Drinking Water, *Groundwater*, Volume 43, Issue 6, pages 796–805, DOI: 10.1111/j.1745-6584.2005.00053.x
14. **Erickson, Melinda L.** and Barnes, Randal J, 2005. Well characteristics influencing arsenic concentrations in groundwater, *Water research*, Volume 39, Issue 16, Pages 4029-4039, doi:10.1016/j.watres.2005.07.026 and Erickson, Melinda L., 2005, Erratum to: Erickson, ML, Barnes, RJ, October 2005. Well characteristics influencing arsenic concentrations in ground water. *Water Res.* 39 (16) 4029–4039. *Water Research*, Volume 39, Issue 20, Pages 5277-5278
15. Petersen, David Lee, **Erickson, Melinda L.**, Roberson, Ruth, Siekmeier, John, 2007, Intelligent Soil Compaction: Geostatistical Data Analysis and Construction Specifications, TRB 86th Annual Meeting Compendium of Papers, Transportation Research Board 86th Annual Meeting, Washington DC, United States, January 2007.

- 
16. Toner, Brandy M., Nicholas, Sarah L., Briscoe, L.J., Knaeble, Alan R., Berg, J.A. **Erickson, Melinda L.**, 2011. Natural Sources of Arsenic in Minnesota Groundwater, *CURA Reporter* 41[3-4].
  17. **Erickson, M.L.**, 2012, Steroidal hormones and other endocrine active compounds in shallow groundwater in nonagricultural areas of Minnesota—Study design, methods, and data, 2009–10: U.S. Geological Survey Data Series 663, 9 p.
  18. Trost, J.J., Kiesling, R.L., **Erickson, M.L.**, Rose, P.J., and Elliott, S.M., 2013, Land-cover effects on the fate and transport of surface-applied antibiotics and 17-beta-estradiol on a sandy outwash plain, Anoka County, Minnesota, 2008–09: U.S. Geological Survey Scientific Investigations Report 2013–5202, 51 p., <http://dx.doi.org/sir20135202>.
  19. Elliott, S.M., and **Erickson, M.L.**, 2014, Pharmaceutical compounds in shallow groundwater in non-agricultural areas of Minnesota—Study design, methods, and data, 2013: U.S. Geological Survey Data Series 878, 11 p., <http://dx.doi.org/10.3133/ds878>.
  20. **Erickson, M.L.**, Langer, S.K., Roth, J.L., and Kroening, S.E., 2014, Contaminants of emerging concern in ambient groundwater in urbanized areas of Minnesota, 2009–12 (ver. 1.2, September 2014): U.S. Geological Survey Scientific Investigations Report 2014–5096, 38 p., with appendix, <http://dx.doi.org/10.3133/sir20145096>.
  21. Cozzarelli, I. M., Schreiber, M. E., **Erickson, M. L.** and Ziegler, B. A. (2015), Arsenic Cycling in Hydrocarbon Plumes: Secondary Effects of Natural Attenuation. *Groundwater*. 54(1), pp 35-45. doi: 10.1111/gwat.12316.
  22. **Erickson, M.L.** 2015. USGS Testing a Novel Technology for Measuring Arsenic in Minnesota Groundwater Samples. *Minnesota Ground Water Association Newsletter*, 34:4.

## Publications in-process

1. Ross, L. and **Erickson, M.** 2016. Characterizing Groundwater and Surface-Water Interactions in Selected Northeastern Twin Cities Lakes, Minnesota. *Minnesota Ground Water Association Newsletter*, 35:1.
2. Barbara A. Bekins, Isabelle M. Cozzarelli, **Melinda L. Erickson**, Ross Steenson, Kevin A. Thorn. *In review*. “Crude oil metabolites in groundwater at two spill sites,” *Groundwater* in October 2015.
3. Sarah Nicholas, **Melinda L Erickson**, Laurel G Woodruff, Alan R Knaeble, Matthew A Marcus, Joshua K Lynch, and Brandy M Toner, *In review*. “A micro-X-ray absorption spectroscopy approach to quantify solid phase arsenic speciation, with implications for sediment-water interactions in a glacial aquifer,” prepared by authors, is currently in peer review at the journal *Geochimica et Cosmochimica Acta*

---

## SCIENTIFIC AND PUBLIC SERVICE

### CURRENT MEMBERSHIPS IN PROFESSIONAL SOCIETIES.

- Minnesota Ground Water Association, member since 1992; Elected Executive Board President Term, 2010 – 2012 (2010 – President-Elect, 2011 – President, 2012 – Past President;  
<http://www.mgwa.org/>)
- Minnesota Board of Professional Engineers, Licensed Professional Engineer (Civil) since 1998
- European Geosciences Union, member since 2015

### TECHNICAL PRESENTATIONS

1. **Salisbury, M.L. (née Erickson)**, Control Equation Formulation for Circular Inhomogeneities in the Analytic Element Method. Analytic Element Modeling of Groundwater Flow Conference, Indianapolis, Indiana. April 19-21, 1994.
2. Messing R., R. Soule, J. Small-Johnson, D. Durkin, **M. Salisbury (née Erickson)**, L. Souther, J. Connett, B. Baker Minnesota Arsenic Study (MARS): Geochemistry, Human Exposures, and Effect Biomarkers Associated with Low-Level Arsenic in Drinking Water. Messing R., J. Small-Johnson, and **M. Salisbury (née Erickson)** Poster at the Third International Conference on Arsenic Exposure and Health Effects; Society for Environmental Geochemistry and Health (SEGH). San Diego, California. July 12 - 15, 1998. [Presented]
3. Messing R., R. Soule, J. Small-Johnson, D. Durkin, **M. Salisbury (née Erickson)**, L. Souther, J. Connett, B. Baker Arsenic and New Regulations: The Minnesota Arsenic Study and the New MCL. **M. Salisbury (née Erickson)** presentation at the National Groundwater Association's Emerging Issues Conference, Abstract Number P38-39. Minneapolis, Minnesota. June 2000. [Presented]
4. Messing R., R. Soule, J. Small-Johnson, D. Durkin, **M. Salisbury (née Erickson)**, L. Souther, J. Connett, B. Baker Minnesota Arsenic Study (MARS): Geochemistry Associated with Low-Level Arsenic in Drinking Water. Messing and **Salisbury (née Erickson)** presented Poster at the Fourth International Conference on Arsenic Exposure and Health Effects; Society for Environmental Geochemistry and Health (SEGH). San Diego, California. June 2000. [Presented poster]
5. **Erickson, M.L.**, Soule, R., Peterson, K., Got Arsenic? Site Investigation as a Possible Solution, **Invited presentation** at the 19th Annual Water and Wastewater Technical Conference, Minnesota Rural Water Association, St. Cloud, Minnesota. 3/4/2003. [Presented]
6. **Erickson, M.L.**, Measured and Modeled Arsenic Species Variability in Midwestern Ground Water. Poster at the Geological Society of America Annual Meeting and Exposition. Seattle, WA. 11/5/2003. [Presented poster]
7. **Erickson, M.L.**, Late Wisconsin Till and Arsenic Contamination in Upper Midwest Groundwater. Poster at the Institute of Lake Superior Geology Annual Conference. Duluth, Minnesota. 5/5 – 7/2004. [Presented poster]
8. **Erickson, M.L.**, Going Beyond the Minimum: Purposefully Designing (or Redesigning) Ground Water Sampling Schemes. Presentation at the Minnesota Ground Water Association Fall Conference, St. Paul, Minnesota. 11/16/2004.
9. **Erickson, M.L.**, Arsenic in Upper Midwest Drinking Water. Presentation at the 2005 National Ground Water Association Naturally Occurring Contaminants Conference: Arsenic, Radium, Radon, and Uranium, February 24-25, 2005. Charleston, SC. 2/24/2005.
10. **Erickson, M.L.**, Geochemical Investigation of Naturally Occurring Arsenic in Upper Midwest Ground Water. **Invited presentation** at the Minnesota Ground Water Association Fall Conference, St. Paul, Minnesota. 11/17/2005.



- 
11. **Erickson, M.L.**, Arsenic: Its everywhere you don't want it to be. **Invited presentation** at the Fall 2005 USDA Rural Development Engineer Conference. Brainerd, Minnesota. 11/30/2005.
  12. Liukkonen, B., Crary, V., **Erickson, M.L.**, Murphy, M., Linn, J., Horvath, G. Assessing the Impact of Arsenic on Midwest Dairy Operations, Presentation at the 2006 USDA-CSREES National Water Quality Conference, 2/5-9/2006, San Antonio, TX
  13. Liukkonen, B., Crary, V., **Erickson, M.L.**, Murphy, M., Linn, J., Horvath, G. Possible Effects of Arsenic in Drinking Water on Dairy and Beef Products. Poster presentation at the 2007 New England Private Well Symposium, 12/3-4/2007, Newport, RI.
  14. **Erickson, M.**, Solem L., Ferrey, M., Streitz, A., Stockinger, J., 2008, **Invited** presentation at the monthly meeting of the American Institute of Hydrology, Minnesota Section. *Perfluorochemicals (PFCs) in Ambient Shallow Groundwater in Minnesota*. [Presented]
  15. Nicholas, Sarah L., Briscoe, Lindsey J., **Erickson, Melinda L.**, Jennings, Carrie, Lusardi, Barbara A., Knaeble, Alan R., and Toner, Brandy M, Molecular environmental science at the landscape scale: x-ray absorption spectroscopy studies of arsenic geochemistry in glacial tills, Paper No. 174-1, GSA Annual Meeting in Portland 10/18-21/2009.
  16. Trost, Jared J., Boland, Kimberly, Bekins, Barbara A., Cozzarelli, Isabelle, Baedeker, Mary Jo, Eganhouse, Robert P., Jaeschke, Jeanne B., and **Erickson, Melinda L.**, Understanding the long-term dynamics of natural attenuation of crude oil in the subsurface, Paper No. 185-1, 2011 GSA Annual Meeting in Minneapolis 10/9-12/2011.
  17. Nicholas, Sarah L., Toner, Brandy M., **Erickson, Melinda L.**, Knaeble, Alan R., Woodruff, Laurel G. And Meyer, Gary N, speciation and mineralogy of arsenic in glacial sediments and their effect on arsenic concentrations in groundwater, Minnesota, USA, Paper No. 283-5, 2011 GSA Annual Meeting in Minneapolis, 10/9-12/2011.
  18. Erickson, M.L., 2011, **Invited** presentation at the Iowa Ground Water Association and Center for Health Effects of Environmental Contamination's "Arsenic in Iowa's Water Sources: Surveillance, Research, Education and Policy," *Arsenic in Minnesota groundwater: Occurrence and geochemical mobilization mechanisms*, 11/9/2011. [Presented]
  19. Erickson, M.L., Lee, K.E. and Kroening, S. 2012, **Invited** presentation at the Minnesota Ground Water Association spring conference, *Contaminants of Emerging Concern in Minnesota Groundwater*. 4/19/2012. [Presented]
  20. **Erickson, M.L.** and Kroening, S. 2012, Presentation at the Midwest Groundwater Conference, Minnesota Section. *Contaminants of Emerging Concern in Minnesota Groundwater*. Minneapolis, Minnesota, 10/1-2/12. [Presented]
  21. Slater, L. D.; Revil, A.; Atekwana, E. A.; Mewafy, F.; Bekins, B. A.; Cozzarelli, I.; Herkelrath, W. N.; Skold, M.; Ntarlagiannis, D.; Trost, J.; **Erickson, M.**; Heenan, J. W.; Lane, J. W.; Werkema, D. D. Field-scale evidence for biogeophysical signatures resulting from natural attenuation of a well characterized crude oil spill American Geophysical Union, Fall Meeting 2012, abstract #H41K-02, 12/2012.
  22. **Erickson, M.L.** and Kroening, S. 2013, **Invited** presentation at the monthly meeting of the American Institute of Professional Geologists, Minnesota Section. *Contaminants of Emerging Concern in Minnesota Groundwater*, 9/3/13. [Presented]
  23. **Erickson, M.L.**, and Toner, B.M., 2013, **Invited** presentation at the Minnesota Ground Water Association spring conference, *Arsenic in Minnesota Groundwater: Update on Our State-of-Understanding*, 4/24/2013. [Presented]
  24. **Erickson, M.L.**, and Toner, B.M., Nicholas, S., and Berquist, E., 2013, **Invited** presentation at the Minnesota Water Well Association's annual meeting, *Arsenic in Minnesota Groundwater: Update on Our State-of-Understanding*, 1/27/2014. [Presented]

- 
25. Erickson, M.L., Toner, B.M. and Nicholas, S., 2014, **Invited** presentation at the Iowa Ground Water Association and Center for Health Effects of Environmental Contamination's "Iowa Groundwater and Public Health Symposium," *Arsenic in Minnesota Groundwater: Update on Our State-of-Understanding and next steps*, 3/11/2014. [Presented]
  26. Erickson, M.L., and Kroening, S.E. 2014. **Invited** presentation at the Minnesota Department of Health monthly Clean Water Lunchtime Brownbag. *Contaminants of Emerging Concern in Minnesota Groundwater*. St. Paul, MN, 8/14/14. [Presented]
  27. Nicholas, S. L.; Gowan, A. S.; Knaeble, A. R.; Erickson, M. L.; Woodruff, L. G.; Marcus, M.; Toner, B. M. Solid-Phase Speciation of Arsenic as the Primary Control on Dissolved As Concentrations in a Glacial Aquifer System: Quantifying Speciation of Arsenic in Glacial Aquifer Solids with  $\mu$ XAS Mapping. American Geophysical Union, Fall Meeting 2014, abstract #H23E-0919, 12/2014.
  28. Erickson, M.L., 2014. **Invited** presentation at the 2014 Scientific Seminar of the Society of Cosmetics Chemists, California Chapter (travel expenses paid): "The Challenges of a Demanding Market: Where Science Meets Cosmetics." *Contaminants of Emerging Concern in Minnesota Groundwater*. Marina Del Rey, CA, October 2, 2014.
  29. Erickson, M.L., 2015. **Invited** presentation to the NAWQA Glacial Aquifer Modeling and Mapping team, Arsenic in Minnesota groundwater—Occurrence and relation to hydrogeologic and geochemical factors. October 29, 2015.

## LECTURESHIPS AND OTHER ACADEMIC

### Adjunct Graduate Faculty appointments, University of Minnesota

Department of Bioproducts and Biosystems Engineering  
Water Resources Science Graduate Degree Program

### Lectures, seminars, and courses taught

- December 2015: **invited** presentation to the University of Minnesota's Minnesota Geological Survey monthly seminar series, Arsenic in Minnesota groundwater—Occurrence and relation to hydrogeologic and geochemical factors
- November 2013: **invited** seminar, University of Minnesota Water Resources Science Seminar. *Contaminants of Emerging Concern in Minnesota Waters*
- November 2013: **invited** guest lecture, University of Minnesota Department of Bioproducts and Biosystems Engineering. *Contaminants of Emerging Concern in Minnesota Waters*
- December 2011: **invited** guest lecture, University of St. Thomas Departments of Geology and Environmental Science. *Arsenic in Upper Midwest Groundwater: Occurrence and Geochemical Mobilization Mechanisms*
- April 2009: **invited** seminar, University of Minnesota Water Resources Science Seminar. *Arsenic in Minnesota Groundwater: Occurrence and Geochemical Mobilization Mechanisms*
- February 2008: **invited** guest lecture, University of Minnesota Department of Bioproducts and Biosystems Engineering, *Emerging Contaminants and Impaired Waters/TMDLs*
- Fall 2008: **Invited** seminar at St. Paul Academy, *Perfluorochemicals (PFCs) in Ambient Shallow Groundwater in Minnesota*

---

Fall 2006: taught CE 5541 – Environmental Water Chemistry, University of Minnesota Department of Civil Engineering. **Invited** to teach this 3-credit course by Prof. William Arnold, while he was on sabbatical. Course material covered composition of natural waters, chemical kinetics, solubility, metal-ion complexation, principals of redox, nutrient cycles, iron and manganese chemistry, trace metal cycling, fate of organic pollutants.

November 2004: **invited** seminar, North Dakota State University Department of Geology, *Late Wisconsin-aged Till and Elevated Arsenic Concentrations in Drinking Water in the Upper Midwest, USA*

November 2004: **invited** guest lecture, North Dakota State University Department of Geology, *Arsenic in Upper Midwest Ground Water: Geochemistry and Regulatory Implications*

### Student examining committees at the University of Minnesota

Sarah Nicholas, PhD, expected 2016, *Speciation and mineralogy of arsenic in glacial sediments and their effect on arsenic concentrations in groundwater, Minnesota, USA* [Although not a co-adviser, I have been very involved with Sarah and her advisor over the past 6 years]

Cameron Blake, MS, expected 2016,  *$\delta^{13}\text{C}$ PLFA Analysis of the Microbial Community Composition within Peat Depth Profiles in Response to Deep Peat Warming and Environmental Conditions*

Kara Fitzpatrick, MS, expected 2016, *How can macroinvertebrate data be used to evaluate the effectiveness of agricultural best management practices in HUC12 streams?*

Scott Kronholm, PhD, 2015, *Hydrologic flowpath and other natural and anthropogenic factors controlling nitrogen movement from the landscape to streams*

Brent Mason, MS, 2014, *Groundwater and Surface Water Interactions Down-Gradient from a Decades-Old Crude Oil Spill. Beltrami County Minnesota*

Lee Engel, MS, 2014, *Exploring Hydraulic Residence in Minnesota's Sentinel Lakes: Implications for Management*

Stephanie Korrer, MS, 2013, *Evaluation of Potential Associations between Groundwater Arsenic Levels and Incident Malignant Melanoma in Minnesota*

Amanda Strommer, MS, 2013, *Communication and Public Outreach about Emerging Contaminants in Public Drinking Water Supplies in Minnesota*

Erik Smith, PhD, 2012, *Spatial and temporal variability of preferential flow in a subsurface-drained landscape in north-central Iowa*

Heidi Peter, PhD, 2011, *Estimating renewable water flux using landscape features*

Co-advisor, Molly Churchich, MS, 2011, *Using Temperature Sensing Equipment to Detect Groundwater and Surface Water Interactions in Long Lake, New Brighton, MN*

Jared Trost, MS, 2010, *Water Balance Evaluation of Perennial and Annual Biofuel Cropping systems*



---

## SCIENTIFIC LEADERSHIP

As a recognized expert within Minnesota's groundwater community and longtime member of the Minnesota Ground Water Association (MGWA), I have played a leadership role in several undertakings focused on Minnesota or upper Midwest groundwater, most recently as an active participant in MGWA's 'White Paper Initiative.' I volunteered to be a **member of the first MGWA White Paper Work Group**, on the topic of "Manganese in Groundwater." I was appointed **chairperson** of the Manganese Work Group, and successfully lead the 8-person group to the completion of MGWA's first white paper ([http://www.mgwa.org/whitepapers\\_01\\_Manganese.php](http://www.mgwa.org/whitepapers_01_Manganese.php)). I am now serving a four-year term (2015-2019) as an **invited member** of the MGWA White Paper Committee, which oversees the activities of topical work groups (<http://www.mgwa.org/whitepapers.php>) and acts as liaison with the MGWA Board of Directors. In 2012 I was a **planning committee member** and **Water Quality session co-chair** for the October 2012 Midwest Ground Water Conference (<http://www.mwggwc.org/>). While serving my term as the **elected President of MGWA** in 2011, I was **convener and moderator** of the MGWA Spring Conference titled "Toward Sustainable Water Use in Minnesota: Where we are, where we are going, and how we are going to get there," which took place in May 2011 (<http://www.mgwa.org/meetings.php>).

As a member of the national groundwater science community, I played a leadership role in several activities of national or international significance. I was a **local planning committee member** for the "14<sup>th</sup> Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst," which took place October 5-9, 2015 (<http://sinkholeconference.com/>). I was the **convener and moderator** for the June 11-12, 2012 "Terrestrial Crude Oil Spills: Decades of Science from the Bemidji, Minnesota Research Site Symposium," ([http://mngts.org/petroleum\\_remediation/](http://mngts.org/petroleum_remediation/) and <http://mn.water.usgs.gov/projects/bemidji/>). And finally, I was actively involved in several aspects of the 2011 Geological Society of America meeting. I was the **short course co-chair** and a **member of the local planning committee**; a **co-convener of session T89**, "Innovative Field Investigations to Assess Natural Attenuation and Engineered Remediation of Subsurface Contamination"; and a **co-convener of session T97**, "Advances in Understanding at the Groundwater/Surface Water Interface and Challenges for the Future: A Reflection on Tom Winter's Legacy" (<http://www.geosociety.org/meetings/2011/>).

## MEDIA COVERAGE

March 25, 2015: <http://www.mprnews.org/story/2015/03/26/ground-level-beneath-the-surface-arsenic>

June 26, 2014: <http://www.mprnews.org/story/2014/06/26/ground-level-beneath-the-surface-cec>

June 15, 2014: <http://www.startribune.com/in-bemidji-a-research-site-reveals-secrets-of-an-oil-spill/263118021/>

June 4, 2014: <http://www.mprnews.org/story/2014/06/03/bemidji-oil-spill-site-research>

In the January-February 2016 issue of the *Minnesota Conservation Volunteer*, I was one of three geoscientists featured in the recurring column 'Young Naturalists' (aimed at grade-school and middle-school children, online at <http://www.dnr.state.mn.us/mcvmagazine/issues/2016/jan-feb/careers-in-geology.html>).

---

## TECHNICAL TRAINING RECEIVED

Name of Training Course	Instructing Institution	Course Duration	Dates
<b>Applied Environmental Statistics</b>	U of MN	40 hours	February 1-5, 2016
<b>USGS Mentoring Program</b>	USGS	40 hours	September 2015 – September 2016
<b>Applied Multivariate Methods for Ecological and Environmental Data</b>	USGS	5 days	June 8-12, 2015
<b>USGS Supervisory Challenge</b>	USGS	5 days	January 26-30, 2015
<b>Quality-Control Sample Design and Interpretation</b>	USGS	5 days	September 10-14, 2012
<b>National Groundwater Workshop</b>	USGS	5 days	August 6-10, 2012
<b>Distributed Temperature Sensing Workshop</b>	USGS	5 days	Jan 31 – Feb 4, 2011
<b>Groundwater/Surface-Water Interactions</b>	USGS	5 days	March 1-5, 2010
<b>USGS-WRD Report Planning, Writing, Policy, and Peer Review</b>	USGS	2 days	May 5-6, 2009
<b>Essential Skills for Project Managers</b>	Mn/DOT and Contractor	8 days	Jan/Feb 2006
<b>Project Management</b>	Contractor	2 days	1995
<b>The Hazardous Waste Operations and Emergency Response Standard (HAZWOPER)</b>	Contractor	5 days	1994